REMARKS/ARGUMENTS

To address paragraph 2 of the Office Action, Claims 5 and 22 have been deleted.

In Claim 21, the term "relatively" has been deleted.

Regarding paragraph 4 of the Office Action, Claims 27 and 28 have been deleted. It should be noted, that the citation Larson (GB1545232) does not disclose a method of treating marine growth. The Applicant therefore believes that Claims 27 and 28 are novel and inventive over Larson. Nevertheless, the claims have been deleted to facilitate prosecution of the application.

Regarding Examiner's Objection 5, it is respectfully submitted that the unamended Claims 1 and 15 were not anticipated by Clum et al (US5389266). In any event, a further amendment has been made to Claim 1, to incorporate the features of Claim 14, and a corresponding amendment has been made to apparatus Claim 15 (incorporating the features of Claim 19). Claims 14 and 19 have been deleted.

It should be noted that, at the PCT phase, claims corresponding to the unamended Claims 1 and 15 were found to be novel and inventive, and therefore patentable, over the same prior art (Clum et al). It should also be noted that the UK document, GB1545232 (Larson), was cited in the PCT Search Report and also considered by the Examiner. Nevertheless, the Examiner gave a positive International Preliminary Report on Patentability (IPRP). A copy is attached as Exhibit A.

Subsequently, an Australian patent was granted for the same claims.

It is now clear from Claim 1 (and the corresponding apparatus Claim 15), that the present invention has the following features:

• confining a volume adjacent a portion of a surface to be treated for marine growth;

• introducing a heated fluid into the volume to heat the marine growth;

• moving the confined volume over the surface to treat other portions of the surface;

• conforming the confined volume to the shape of the surface as the confined volume is moved over the surface;

• retaining the confined volume adjacent the surface regardless of the orientation of the surface.

None of the disclosures cited by the Examiner disclose this combination of inventive features.

This combination of features has a number of advantages.

The confined volume conforms to the surface as it moves over the surface, so that heated fluid is not unduly wasted and the amount of heat energy that needs to be provided to effectively treat the marine growth is not excessive.

The confined volume is retained adjacent the surface regardless of the orientation of the surface. It therefore does not matter if the surface being treated is at a non-horizontal orientation. Indeed, most ships' hulls, in the water, will be at orientations that are vertical or at other angles to the horizontal. The confined volume remains adjacent the surface regardless of its orientation, so that the

surface, such as a ship's hull, can be treated in the water. In one embodiment, this is done by way of magnetism, but could be done in other ways.

The marine growth is treated by the introduction of a heated fluid to the volume. That is, the heated fluid is not heated while it is within the volume (in situ), but is instead heated outside the volume and introduced to the volume. This allows for efficiencies in heating energy, and also obviates the need to include mechanisms such as heating elements in the confined volume.

Clum et al proposes a number of embodiments. In the embodiments of Figures 1 and 2, an apparatus comprising a chamber 16 is disclosed for treating marine growth on the bottom surface of a waterway. The chamber has a wall with a depending skirt 20 defining the sides, the wall 18 and skirt preferably being formed with inner and outer skins or surfaces 22, 24 formed from non-corrosive material such as stainless steel. The chamber 20 is therefore rigid. See column 3, line 55 and column 4, line 8 of Clum et al.

An array of coils 30 defining a heat exchanger into which heated fluid is introduced is mounted in the chamber 16. The heat exchanger heats the water within the chamber to kill the marine growth. The chamber is then removed from the bottom surface and the process may be repeated on another portion of the bottom surface.

The chamber 16 of Clum et al is not arranged to be retained adjacent the surface regardless of the orientation of the surface. In the embodiments of Figures 1 and 2, the chamber 16 is retained by gravity. If it were attempted to retain this embodiment of Clum against the surface of a vertically orientated ship's hull, it would fall away, as there is no means to retain it.

The "flexible boot" referred to in column 3, lines 65 to column 4, line 3 merely permits the chamber to conform to irregular contours on the bottom

surface so that the chamber may be enclosed about the surface to be treated with a batch of water within the chamber. The boot does not operate to retain the chamber regardless of orientation of the surface.

Further, the chamber 16 of this embodiment of Clum is not flexible and is not arranged to conform in any way with any surface that it may treat. It would therefore be very difficult, for example, to use the chamber disclosed in Figure 2 of Clum et al to treat curved hulls of vessels.

The Clum et al device is a rigid chamber which has a flexible "boot". Although the flexible boot allows the chamber to move over rough surfaces, it in no way enables the shape of the confined volume to conform to the surface (there is no flexibility in the rest of the chamber).

The embodiment of Figures 3 and 4 of Clum, discloses the idea of using a chamber 56 which is large enough to contain an entire vessel. See Figures 3 and 4 and the corresponding description on column 4, line 47 to column 5, line 29. The entire volume of water within this chamber is then heated. It is respectfully submitted that this would be energy prohibitive. The amount of volume of water required to be heated for a large ship, for example, would use far too much energy. Further, building the chamber would also be cost prohibitive.

It should be noted that this aspect of Clum et al actually leads away from the present invention. It is clear that Clum et al did not envision the solution of the present Applicant, using a small confined volume and passing it over the surface of a ship to heat the surface as it is passed over portions of the surface. Instead, Clum et al envisioned confining a large volume about the entire hull and heating it. This would be cost prohibitive.

A further aspect of Clum, disclosed in relation to Figures 5, 6 and 7, discloses treating water about a fixed dock by isolating the water in a further chamber 106 constructed in sections by assemblies which may be assembled

about the portion of the dock to be treated. Again, this leads away from the present invention. There is no confined volume which is arranged to move over the surface or which conforms to the shape of the surface.

The embodiments of Figures 3 to 7 of Clum et al, are therefore arranged to be fixed in position, so that they don't move a confined volume over the surface to treat other portions of the surface. They also have the disadvantage of requiring heating of very large volumes of water. Further, there is no disclosure of the feature of conforming the confined volume to the shape of the surface.

There is no suggestion in Clum et al of arranging the chamber of Figure 2 so that it could be used to treat ships' hulls. There is no suggestion of providing a flexible chamber which could conform with curved surfaces. The disclosure of Clum et al in fact emphasises the inventiveness of the present invention, as they decided to use the inferior solution of surrounding the entire vessel hull with a chamber, and did not appreciate the particulars of a chamber which conforms with the surface of a hull.

Larson discloses a complex machine which includes a caterpillar track which, although it conforms to the surface of the hull, does not confine any volume. The machine includes a number of workstations for providing various treatments to the surface being treated.

Larson does disclose the idea of retaining the caterpillar tracks against the surface of a hull to be treated. There is, however, no confined volume, or conforming of any confined volume, to the surface to be treated. Larson discloses a totally different arrangement. The Examiner has suggested in paragraph 8 of the Office Action that a combination of Larson with Clum et al would lead to Clum et al using magnets to hold it to a surface being treated. It is unclear as to how Larson would be combined with Clum et al as they are totally

different devices, with totally different structures. Larson does not suggest confining any volume of heated water.

Even if the combination were made, there is still no suggestion in the combination of conforming the volume to the surface. The features of the present invention as claimed are therefore not disclosed, even by the combination.

Larson, in fact, shows a device which supports a surface treatment apparatus, such as a sandblasting station, a dust suction station, a brushing station, a liquid rinsing station and one station for application of a coating material (see page 1, lines 81-89). In other words, Larson is a device which allows a surface to be prepared and then covered with a surface layer, such as paint. It is totally different from the present invention, which uses a heated fluid to treat marine growth on a surface.

Larson et al has nothing to do with treating a surface to treat marine growth. We therefore do not believe it is relevant prior art.

It is also worth pointing out that Larson does not confine a volume and conform the confined volume to the shape of the surface as the combined volume is moved over the surface. The caterpillar tracks of Larson do conform to the surface, but the "volume" (item 5) housing the various treatment stations does not conform to the surface. See item 5 in the figures. This volume containing the work stations is rigid.

Respectfully submitted,

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